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This product specification is based on recognized industry standards for project documentation found within the Construction Specification Institute (CSI) Project Resource Manual – CSI Manual of Practice [5th Edition], MasterFormat™ [2004 Edition], SectionFormat™ [1997 Edition] and PageFormat™ [1999 Edition].

This specification is based on JVC model VN-C20U and may be used as a manufacturer based proprietary specification or edited to a performance based specification. Optional text is presented in brackets []; delete optional text as required in final project documentation. Specifier Notes are intended to provide information and guidance relative to the specific product or system ensuring proper configuration, performance and operation; delete these notes in final project documentation.

Section 28 23 29

Video Surveillance Remote Devices and Sensors

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: One third inch Interline Transfer CCD Chip Motion–JPEG Internet Protocol (IP) Camera with automatic sensitivity adjustment during low light conditions by switching between color and black and white modes. The IP camera is a hybrid, providing both analog and network video outputs and features Power over Ethernet (PoE).

1.02 RELATED SECTIONS

- A. 01.61.13 Software Licensing Requirements
- B. 01.86.33 Electronic Safety and Security Performance Requirements

Specifier Note: Projects may vary in scope and complexity; as such it is important to identify those sections which may have an impact on system operation or infrastructure integrity. It is important these sections be reviewed and addressed if the project warrants it and/or is the practice of the Specifier. Edit or revise those sections which do not apply to a specific project. Contact a JVC Representative for further assistance.

- C. 28.01.20 Operation and Maintenance of Electronic Surveillance
- D. 28.05.00 Common Work Results for Electronic Safety and Security
- E. 28.06.20 Schedules for Electronics Surveillance

- F. 28.08.00 Commissioning of Electronic Safety and Security Systems
- G. 28.13.33.33 Access Control Interfaces to Video Surveillance
- H. 28.16.33.33 Intrusion Detection Interfaces to Video Surveillance
- I. 28.23.13 Video Surveillance Control and Management Systems
- J. 28.23.26 Video Surveillance Remote Positioning Equipment
- K. 28.23.23 Video Surveillance Infrastructure
- L. 28.31.33.33 Fire Detection and Alarm Interfaces to Video Surveillance

Specifier Note: The convergence of IT Infrastructures and Network Video technology may often require the integration of equipment enclosures and related hardware typically found in data center environments. Edit or revise those sections as required for a specific project or specification practices

- M. 27.11.16 Communication Cabinets, Racks, Frames and Enclosures
- N. 27.21.00 Data Communication Network Equipment
- O. 27.22.00 Data Communication Hardware

Specifier Note: Within large scope projects communication and cabling may often be related to requirements found in the overall building electrical requirements. Edit or revise those sections as required for a specific project or specification practices.

- P. 26.05.19 Low-Voltage Electrical Power Conductors and Cables
- Q. 26.41.23 Lighting Protection, Surge Arrestors and Suppressors
- R. 26.55.53 Security Lighting
- S. 26.56.00 Exterior Lighting

1.03 REFERENCES

- A. UL/GS
- B. FCC Part 15 Radio Frequency Radiators
- C. CE EN55022 / EN5524: Emission Immunity
- D. RoHS
- E. IEEE 802.3 / 802.3u / 802.3af

1.04 SUBMITTALS

- A. General: In compliance with Conditions of the Contract and Division 1 Submittal requirements.
 - 1. Product Data: Submit original equipment manufacturers product, installation, operation and maintenance data.
 - 2. Samples: Provide sample [video] [IP Address] from representative [client network] [internet browser] with a minimum of [6] [8] [12] [16] network based cameras.

Specifier Note: When comparing/choosing digital video security equipment, many products may be derivatives of consumer electronics. The following language ensures the Owner of the proper equipment is being used for the intended purpose

1.05 QUALITY ASSURANCE

- A. The system shall be manufactured for the intended purpose in a commercial /industrial, 24 hour day, 7 days per week, and 365 days per year operating environment
- B. Manufacturer Qualifications: Obtain [products] [systems] from a manufacturer experienced in the engineering, production and support of networked digital video systems, and, with sufficient production capability to meet the required project schedule
 - 1. Specified Manufacturer to provide field engineering support services
 - 2. Specified manufacturer to provide on demand web based training for installers and technicians

Specifier Note: Certification or licensing requirements for contractors, installers or integrators of safety and security systems vary from state to state in the continental United States. Verify requirements with the Authority Having Jurisdiction for the specific project. Edit or revise those sections as required for a specific project or specification practices.

- C. Installer Qualifications:
 - 1. Engage Installer with [license] [certification] [type] as required by the [State of] [City of] with demonstrated successful experience designing, installing, commissioning, training and servicing network based video systems
 - 2. The installer shall have staff members trained and familiar with Microsoft Networks and Cisco Systems network hardware and software
 - 3. Installer shall have completed factory training and be certified by the manufacturer as qualified to install, operate and maintain product(s) specified

1.06 WARRANTY

- A. Provide original equipment manufacturers warranty documentation for acceptance by the Owner

Specifier Note: Coordinate paragraph below with manufacturers warranty requirements

- 1. Warranty Period: [*specify term*] years commencing with the Date of Substantial Competition

1.07 DELIVERY, STORAGE AND HANDLING

- A. General: Comply with Division 1 Product Requirement Section and the manufacturers recommended procedures for receiving and protection of the equipment.
- B. Storage and Protection: Store materials protected from exposure to extreme or harmful environmental conditions and at temperature and humidity levels recommended by the manufacturer.
 - 1. Prevent physical damage, soiling or wetting
 - 2. Provide secure storage prior to and during installation
 - 3. Provide individual components in the manufacturers original packaging and labeling

1.08 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
 - 1. Site should be substantially enclosed and secure prior to installation of hardware
 - 2. Environmental systems should be in place and operational
 - 3. Deliver materials onsite at least 24 hours prior to installation to allow materials to reach temperature and humidity equilibrium

PART 2 PRODUCTS

2.01 INTERNET PROTOCOL CAMERA

- A. General
 - 1. Provide full frame rate, 30 frames per second, Motion-JPEG Internet Protocol (IP) Camera capable of automatically increasing sensitivity during low light conditions by switching between color and black and white modes. The IP camera shall provide both analog and network video and shall feature Power over Ethernet (POE) with built in software viewer and web server.
 - a. One third inch Interline Transfer CCD Chip with 380,000 (768H x 494V) effective pixels providing horizontal resolution of 480 lines NTSC analog video and 400 lines network video

Specifier Note: There are no industry standards for testing or determining Scene Illumination, or Sensitivity. Light source, scene reflectance, lens type and aperture opening all play a critical role in determining sensitivity (LUX) of a camera. Prior to selecting and specifying cameras you are encouraged to perform a side by side comparison with all variables being equal between cameras. Contact your JVC Representative for further information.

- b. Scene illumination:
 - 1. Color Mode: 1.0 lx, f1.2, AGC On, 25 IRE (25% video)
 - 2. B/W Mode: 0.4 lx, f1.2, AGC On, 25 IRE (25% video)
 - c. Color/Black White Mode: On/Off (switchable)
 - d. Back Light Compensation: On/Off (switchable)
 - e. Shutter speed: Automatic or manual - 1/60 to 1/10000 sec
 - f. DC Iris level: 31 steps
 - g. Lens type: DC Iris / Manual Iris
 - 2. Alarm Management:
 - a. Provide IP camera with two (2) hardwired alarm inputs. Alarm outputs shall be provided through two (2) hardwire alarm outputs and network communication via viewer software.

- b. Provide IP camera with digital motion detection using a programmable 8x6 grid, with user definable sensitivity levels
 - c. Provide 8MB for pre and post alarm image recording buffer, programmable up to 30 seconds for each.
- B. Hardware
- 1. Provide IP camera with built in Web Server and FTP Client capability for storage of alarm images
 - 2. Minimum Personal Computer requirements
 - a. Operating system: Windows XP (Professional or Home Edition) Service Pack 2
 - b. Processor: Pentium4 1.5 GHz or higher
 - c. Memory: 1 GB or higher
 - d. Hard Disk space: 20 MB or more
 - e. Video Card: 1024 x 768 pixels or higher, True Color, 24 or 32 bit
 - f. VRAM: 256 MB
 - g. Web Browser: Internet Explorer V6.0
- C. Software
- 1. Provide three (3) password protected User Access levels
 - 2. Provide IP camera which sends 9 Mbps at maximum bit rate
 - a. JPEG: 640x480 or 320x240 pixels
 - b. Maximum Frame Transfer rate: 30 frames per second
 - 3. Camera setup menu via Web Browser
 - a. DC Iris level
 - b. Backlight Compensation
 - c. Video Compression level
 - d. Chroma
 - e. Auto/Manual White Balance
 - f. AGC
 - g. Camera ID
 - h. Time/Date
 - i. Adjust JPEG size from 3 Kb to 100 Kb per image
 - j. Snapshot function
 - 4. Provide built in ActiveX Viewer
 - a. Monitor from personal computer
 - b. Snapshot function
 - c. Viewer shall be customizable
- D. Networking
- 1. Provide IP Camera with TCP/IP, UDP/IP, HTTP, FTP, ICMP, ARP, RTP, DHCP, NTP, SMTP, IGMP and DSCP communication protocol
 - 2. LAN compliance shall be IEEE802.3, 802.3u and 802.3af
 - 3. Provide IP filter to deny or allow access from a specific IP address
 - 4. Provide programmable IP address to allow multiple units on the same network
 - 5. Provide NAT/IP Masquerade capability allowing multiple IP cameras to be connected to NAT/IP compatible routers using a single IP Address
 - 6. Provide multicast capability allowing multiple, simultaneous viewing instances without lowering frame rate
- E. Electrical
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1. Input voltage:
 - a. DC 48V via Power over Ethernet (PoE) IEEE802.3af compliant
 - b. AC 24V, 50/60 hertz.
2. Power consumption: 0.5 amps
3. Alarm input: NPN open collector, make or break programmable for latch or momentary, 500 ms and above. 0.3 mA current during low level. 3.3 v applied voltage during high level
4. Alarm output: NPN Open collector. 12 V, 300mA maximum
5. Scanning system : 480 lines, 60 fields/30 frame per second, 2:1 interlace
6. White Balance: Continuous Auto Tracking White (ATW) or Manual
7. Black Level: Pedestal adjustment 0 to 1
8. Automatic Gain Control
9. Analog Video output: NTSC composite video, 1.0 volt peak to peak, 75 ohms resistance
10. Signal to Noise Ratio: 50dB, AGC Off

F. Mechanical

1. Dimensions: 5 7/8 inches (138mm) long by 2 7/8 inches (70mm) wide by 2 5/8 inches (55mm) high.
2. Weight: 1.24 pounds (560g)
3. Lens mount: C or CS
4. Front and side controls, connectors or indicators:
 - a. Back focus adjustment ring
 - b. Lens mount – C and CS compatible
 - c. Back focus locking screw
 - d. Camera reset button
 - e. 4 pin Auto Iris connector
 - f. Power On lamp
5. Rear controls, connectors or indicators:
 - a. BNC connector: Video output – 1V peak to peak, 75 ohms resistance
 - b. RJ-45 (Category 5): 10BASE-T/100BASE-TX Network connection (auto negotiation)
 - c. Alarm Terminal Block: Two (2) Alarm input, to (2) Alarm output
 - d. Power Terminal: AC power connection

G. Environmental

1. Temperature Range
 - a. Storage: 14 to 122 degrees Fahrenheit (-10 to 50 degrees Celsius)
 - b. Operating: 32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius)
2. Relative Humidity Range
 - a. Storage: 15% to 90%, non-condensing
 - b. Operating: 20% to 80%, non-condensing.
3. The unit is suitable for indoor operation. Provide proper air ventilation and filtering to maintain operating temperature and air quality when mounted in equipment cabinets or other confined areas.

H. Regulatory

1. Emission/Immunity:
 - a. FCC Part 15, Subpart B, Class A Device
 - b. CE EN55022 / EN5524

- 2. Safety:
 - a. UL/GS.
- 3. Environmental Sustainability:
 - a. RoHS Directive Compliant

2.02 MANUFACTURED UNITS

- A. JVC Model VN-20U: IP Camera with Power over Ethernet
- B. Included Accessories:
 - 1. Start Up Guide
 - 2. CDRom
- C. Optional Accessories:
 - 1. JVC V.Networks Products

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install the system in accordance with the equipment manufacturers recommended procedures.
- B. Install system using generally acceptable industry practices for network appliances.
- C. Ensure system and network configuration is fully coordinated with the Owner's Information Technology Department

Specifier Note: The following may be deleted for projects of smaller scope in which full Division 1 project documentation is not provided or required. It is recommended that performance requirements be specified within the project documentation to ensure proper configuration and operation of the system. Contact your JVC Representative for assistance in developing performance specification specific to a particular project.

- D. Ensure system and all related components are configured to support performance requirements outlined in Division 1, 01.86.33 Electronic Safety and Security Performance Requirements

3.02 FIELD QUALITY ASSURANCE

- A. Provide Manufacturer Field Engineering Support for engineering, installation, testing and commissioning assistance as required in Division 1.

3.03 COMMISSIONING

Specifier Note: The following may be deleted for projects of smaller scope in which full Division 1 project documentation is not provided or required. It is recommended that performance requirements be specified within the project documentation to ensure proper configuration and operation of the system. Contact your JVC Representative for assistance in developing performance specification specific to a particular project.

- A. Testing: Ensure system operates to manufacturers specifications

- B. Ensure system and all related components are configured to and comply with performance requirements in:
 - 1. Division 1, Section 01.86.33 Electronic Safety and Security Performance Requirements
 - 2. Division 28, section 28.01.20 Operation and Maintenance of Electronic Surveillance

- C. User/Owner Training:
 - 1. Provide original manufacturers [approved] [certified] training for system administrators and operators designated by the Owner.

- D. Documentation: Provide [x] set(s) of manufacturers hardware installation and software user guides for each level of authorized users.

3.04 INSPECTION/MAINTENANCE

- A. Follow manufacturers recommended practices for preventative maintenance.

- B. Comply with Division 28, section 28.01.20 Operation and Maintenance of Electronic Surveillance

- C. Ensure continuous, unrestricted airflow in environment where equipment is installed.

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